532-6.

31 O '98

ISSUED for the INTELLIGENT and those DESIRING ACTUAL FACTS regarding the most PERFECT non-conductor of heat, cold and sound known to science. Universally acknowledged the most wonderful material of the present age.

⁂

...The Uses of...

FRANKLIN INSTITUTE LIBRARY

Granite Rock Wool (Patented)

insulating

and Its Products

(Shipped to all parts of the Civilized World)

in

Filtration
Architecture
Refrigeration
Car Building
Fire Proofing
Insulation
Steam Engineering

Compliments of ______

...THE...

American Insulating Material Mfg. Co.

F. K. SAWYER, General Manager.

Largest Exclusive Manufacturers of High Grade Insulators in the World.

Address all communications to Home Office:

213 and 215 N. Third St., St. Louis, U. S. A.

Factory and Works: Carondelet.
Quarries: Graniteville.

Our Granite Rock Wool increases twenty-five times in bulk the Granite Rock it is made from. It has low specific gravity.

⁂

Important.

ALL persons and corporations will be prosecuted who infringe on the patents owned exclusively by us. *Beware of imitations.* Owing to the phenomenal success of the sale of Granite Rock Wool and Granite Rock Wool Products in steadily but surely driving from the market inferior and odor-producing, non-permanent materials, there are a number of *unprincipled* corporations with iron and blast slags waste products to get rid of, and other parties trying to force on the public Mineral Wools, Mineral Wool Sectional Pipe Coverings, and fancy but false named fibres, representing them to be new Mineral Wools free from sulphur, acids and other impurities, claiming rock base and false bases, made by improved processes, improved by the use of high sounding brands with claims of purity that can not be proved by any reputable analysis; but these unscrupulous manufacturers all make their wools or fancy named fibres from iron, lead or zinc slags, which every intelligent person or scientific man knows contain sulphur and other deleterious ingredients which affect the permanency of their wools or coverings, attacking any metal they come in contact with, and giving off unwholesome and foul gases when wet. We *guarantee* our Granite Rock Wool to be chemically *pure* and *free* from *sulphur* and *acids.* We publish reliable analyses by celebrated chemists, no other manufactures dare to. These analyses we challenge.

Insist on getting Granite Rock Wool and Granite Rock Wool Pipe Coverings. Others *claim* to make a Rock Wool; before purchasing such stuff have it analyzed, the result will prove this class of Wools to be nothing but the old-fashioned sulphur and acid laden Mineral Wool, the same is true of such pipe coverings and other products which will disintegrate and pack down.

Note.—On every sack of Granite Rock Wool, and *each* and *every* article manufactured from Granite Rock Wool, will be found the copyrighted label of the sole manufacturers, namely, American Insulating Material Mfg. Co., St. Louis, U. S. A. *All others are frauds.*

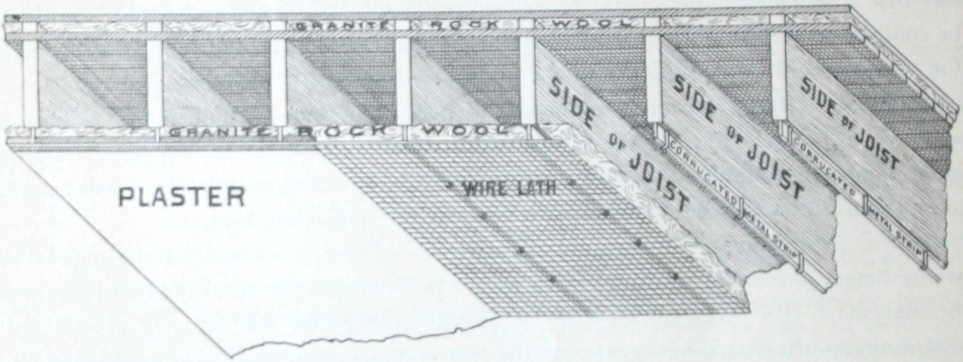
Granite Rock Wool forms more dead air spaces to the cubic inch than any other known material.

* * *

Fire Proofing.

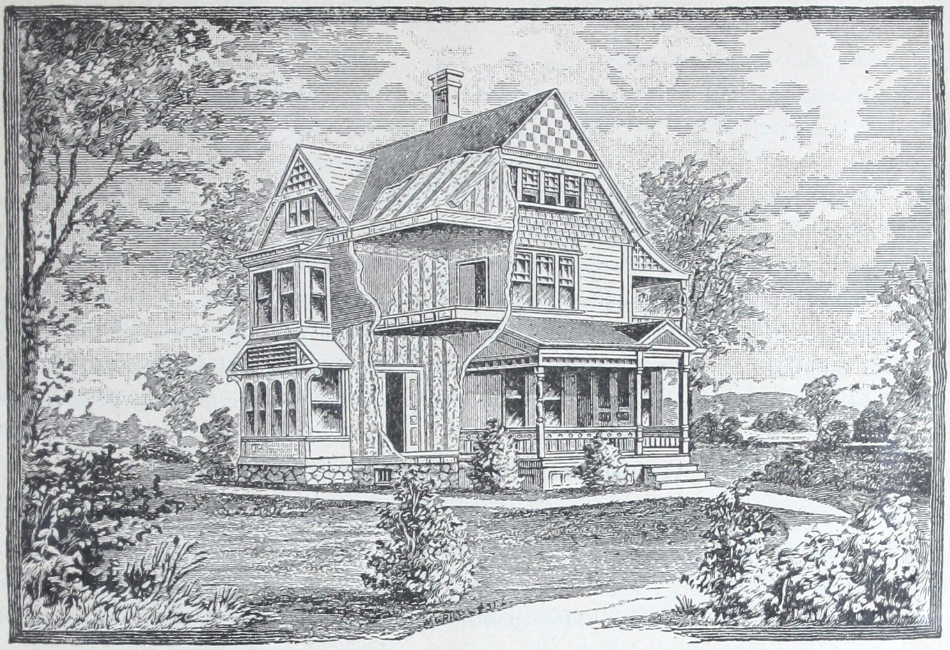
Granite Rock Wool is non-combustible and practically indestructible by heat. As a protection against fire, properly used, it may be of inestimable value. So long as inflammable material is used in the construction of buildings they cannot be made entirely fire-proof, but even when constructed principally of wood they may be made to burn very slowly by the use of Granite Rock Wool, and greater security against fire be thus effected.

If the spaces between the timbers are filled with this indestructible material, should a fire get started in the building, the flames cannot spread through hidden passages, thus conveying the destroying agency with great rapidity to all parts of the structure, but can only progress as they work their way, exposed to sight, along the outer surface of the floors and walls. It will be readily seen that the opportunities of extinguishing the flames when thus retarded are much increased and the liability of destruction of the building greatly lessened, while the opportunities of escape afforded the inmates are greatly multiplied. The use of wire or corrugated iron lath, in connection with the filling of Granite Rock Wool between the studding, is being largely adopted by progressive architects and people who are building. This plan of construction affords the very best plan of protection against fire short of the use of absolutely non-combustible materials in the entire building; for, not only are there no open spaces for the spread of the fire, but the lath, not being combustible, retains the Granite Wool Rock in place, thus preventing the fire from passing from one room to another.



What could be more fire-proof or durable than Granite Rock Wool?

* * *



Residence—Illustrating the application of Granite Rock Wool in outside walls, partitions floors and roof.

Fusing Points of Metals.

Lead and Zinc	608 Degrees.
Iron	1992 Degrees.
Copper	1996 Degrees.
Gold	2282 Degrees.
Steel	2400 Degrees.

The greatest heat obtainable in a cooking stove is 750 degrees. Some metals would boil, others would disappear in vapor, if subjected to heat measuring 3800 degrees.

Granite Rock Wool requires 3800 to 4500 degrees of heat to produce it.

Do you know of any material that possesses as great power of non-conductivety? Answer—No.

Granite Rock Wool is more fire-proof than any other building material.

⁂

Insulation of Sound.

A non-conductor of heat, cold and sound, all in one. Granite Rock Wool possesses especial value as a non-conductor of sound, due to its inelasticity and want of solidity. As sound is communicated by the actual contact of beams, and especially by the vibrations of the air between them, it can be well understood how a porous material like Granite Rock Wool will have a muffling influence on the solid parts of the building, and so occupy the space as that wave motion will not be possible. No other material in general use for heat-proofing and fire-proofing possesses also the property of sound-proofing.

Protection Against Rats, Mice, Insects and Disease Germs.

The analysis of Granite Rock Wool shows it to be a nearly satisfied silica of lime, containing little else. It is plain there is nothing organic in the material to decay or become musty, or to furnish food and comfort to insects or vermin. On the other hand, the fine fibres of glass are irritating to anything which attempts to burrow in them. All earths, mortars, felts and sheathing papers contain organic matter, such as hair and vegetable fibre, which after a time undergo decomposition and create a variety of disease germs. The dangers to health arising from the presence of these sources of infection are greatly aggravated by the continued filtering of dust particles and water through cracks. To leave the floor spaces empty would not avoid contamination in this way, unless such parts are open to thorough ventilation, as otherwise they would simply form a refuge for a mixed population.

The use of mortars, cements or earths, to imbed floor timbers for deafening or other purposes, is generally followed by the dry-rotting of the wood. This never occurs in connection with the use of Granite Rock Wool, for the material itself contains a large percentage of air, and it does not so imbed the timbers as to prevent the access of air to them.

No chemical action takes place in Granite Rock Wool; see analysis. Granite Rock Wool is so pure that it is used for filtering water.

* * *

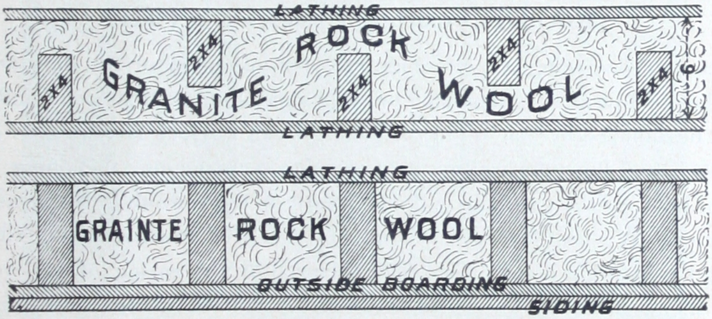
Its Uses.

Packing Houses, Cold Storage Houses, Ice Houses, Breweries, Refrigerators, etc.

THE properties of Granite Rock Wool, viz.: non-conductivity of heat, non-combustibility, non-decaying and vermin-repelling qualities, make it of special value in places where it is desirable to prevent the extraction of cold or the entrance of outside heat. In no other way can such structures be made so effective, economical in operating, and in every way so adapted to the purpose for which they are constructed, as by the use of Granite Rock Wool for the insulation of their walls, ceilings and floors. See page 17.

Tanneries.

Much trouble seems to have been experienced in tanneries by the condensation of the steam as it strikes against the roof, causing a continuous shower of water to fall, injuring the finished leather and otherwise giving annoyance. A filling of Granite Rock Wool in the roof is the only remedy that has been found successful. It is in use in tanneries, giving the very best of satisfaction.



Partition—Showing sectional view of partition packed with Granite Rock Wool.

Hospitals and Asylums.

Granite Rock Wool is invaluable in hospitals and asylums and similar institutions, because of its non-decaying properties and that it contains nothing to harbor disease germs, in connection with its insulating qualities, arresting the spread of fire, deadening of sound, etc.

School Houses, etc.

The properties of Granite Rock Wool, which commend it for use in other buildings, make its application equally important in public and private school houses, music and concert rooms, etc. In any of those the question of insulation of sound is an important one.

Granite Rock Wool is the most efficient deadening material owing to the great number of air cells formed by the, fine fibres.

⁂

Public Halls and Theaters.

In addition to the properties already enumerated, which are also desirable in places where many people habitually congregate, especial attention is directed to the application of Granite Rock Wool for the purpose of fire-proofing, particularly that part of the structure adjacent to the stage. The free use of this material will so retard any fire that may get started in the theater as to afford ample time for the escape of the audience, and increase the probability of quenching the fire and saving the structure itself.

Hotels, Business Blocks, etc.

Insulation of sound and protection against fire are particularly necessary in these classes of buildings, and the value of Granite Rock Wool, not only for deafening and fire-proofing, but for the other purposes named, is acknowledged by many who, in these later years, have erected such buildings.

Dwellings, Apartment Houses and Flats.

In addition to floor-deafening, fire-proofing, etc., the insulation of the division partitions between suites of rooms in flats and residences separated only by a partition, so that each family may consume its noise only, and not be annoyed by that of its neighbor, is an obvious advantage. In dwelling houses standing alone, especially if the outer walls are of wooden construction, the lining of such walls with Granite Rock Wool between the studding will add greatly to the warmth of the house in winter and to its coolness in summer. Where it has been so applied it has been found that the slight addition to the first cost of erecting the building is soon more than balanced by the saving of fuel required to heat the same, especially in the northern latitudes. In the warmer climate of our Southern States the use of Granite Rock Wool in dwellings is particularly recommended, as it will contribute greatly to their comfort, both in the summer and in winter. A filling of Granite Rock Wool in the roofs of dwellings or other buildings will prevent the upper rooms from receiving the heat of the summer sun and storing it up for the occupants during both day and night. They will remain as cool as those on the floor below. In cold weather it will retain the heat which rises through stair wells, bringing about regularity of temperature. Water fixtures in bath rooms, closets and pantries will not be exposed to extremes of cold and heat, in houses built as herein recommended. This lining is also especially desirable about bath rooms, to deaden the noise of the valves and flowing water.

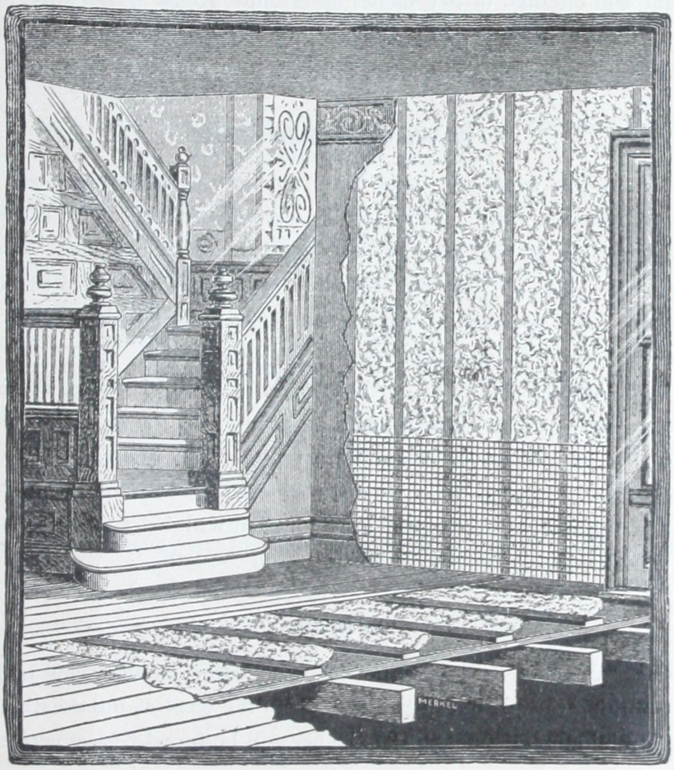
Vermin, Rats and Mice can not live in Buildings lined with Granite Rock Wool.

⁂

Application.

In Floors.

THE plan which gives the best results is to cover the joist with rough floor, upon which lay wood strips to support the upper or finished floor. These strips should be at least a quarter of an inch thicker than the desired depth of wool. The Granite Rock Wool is packed between the strips before the upper floor is laid. Another plan is to put a rough sub-floor between the joist, pack in the wool and lay the finished floor upon the joist. The wool should be packed in closely and pressed down a little below the strips or joist, so that, on laying the matched flooring, the wool will not get into the grooves and hinder the carpenter. Do not jam or break down the wool, but press it sufficiently to *fill all the space compactly*. An implement made of a small piece of board, with a handle fastened to its center at a right angle to the surface of the board, is found to be very convenient in packing the wool in floors, if strips of fire-proof asbestos paper are put under the wood strips in the first mode, or upon top of joist in the second plan, it will help to prevent the transmission of sound *through the wood-work*.



An Interior—Showing Granite Rock Wool in floor and walls behind wire lath. Plaster can be applied over the lath.

The temperatures of the rooms of houses lined and packed with Granite Rock Wool are equalized by its use; they are warmer in winter and cooler in summer.

⁂

Granite Rock Wool being applied dry, the other work is not delayed at all, but can follow closely the laying of the wool. *The wool should not be trampled upon after being put in place.*

Thickness.—One and one-half or two inches of Granite Rock Wool is recommended as a minimum thickness for floor deafening, and will be found to be better than a much greater thickness of any other material. There is no objection to a greater depth of Granite Rock Wool.

In Walls and Partitions.

The wool should be put in at the same time the laths are being put on. Begin lathing at the floor, whether with wood or wire lath. After lathing up two or three feet, fill in the wool as high as lathed, then a few feet more of lath and fill in as before till the top is reached. Pack the wool closely to fill all the space compactly. It is obvious that one side of a partition should be lathed complete before any of the wool is put in. The pressure of the Granite Rock Wool behind the lath does not prevent the plaster keying. It is sufficiently pliable to give way to the pressure.

THICKNESS.—Although the quantity of wool necessary to fill the space the full width of studding is not required for the purpose of good insulation, it is found preferable to thus fill all the space, as it prevents the spread of fire and leaves no room for vermin. The expense attending an extra lining to support the wool would probably equal the cost of the excess of wool required to fill entire space.

In using wool for insulation or deafening, in connection with brick wall or partitions, furring strips can be used and the wool packed in two inches thick behind the lath.

In Roofs.

The Granite Rock Wool can be packed between the rafters by sheathing underneath them, beginning at the eaves and working toward the ridge, packing in the wool as the sheathing is done.

THICKNESS.—A minimum thickness of two inches will be found very effective in making the rooms comfortable that are next the roof.

The foregoing directions will apply equally to most classes of buildings.

All progressive Architects use Granite Rock Wool, and Insurance Companies and Boards of Fire Underwriters throughout the world endorse it.

How to Estimate

The Quantity of Granite Rock Wool Required for Buildings.

MANY frequently overestimate in consequence of not making sufficient deductions for openings, thickness of studding, joists, etc. We therefore append rules for estimating and an example or two as a guide in determining quantities needed. Taking for an example a building 32 feet front, 48 feet deep, with studding 24 feet high.

To find the Quantity of Granite Rock Wool Required to Fill the Outside Walls the Full Thickness of Studding.

Take the entire distance around the building on a horizontal line and multiply by the height of the studding, which will give the square feet of outside surface. Deduct ordinarily, ½ for space occupied by doors, windows, chimneys, studding, braces, etc. Multiply the remainder by the thickness of the studding and divide the product by 12, which will give the number of cubic feet of Granite Rock Wool required to fill the space. Multiply this by 8 for the number of pounds required.

EXAMPLE.—Building 32 x 48 feet; studding 24 feet high, 4 inches wide.

Distance around building 160 feet × 24=3,840 square feet; ½ off for openings, etc., leaves 1,920 square feet; 1,920 × 4=7,680÷12=640 cubic feet; 640 × 8=5,120 lbs. No. 1 wool, required quantity for entire outside walls, full width of studding.

To Estimate the Quantity of Granite Rock Wool Required to Fill a Given Space.

Find area to be covered (by multiplying length by breadth) and allow about 10% for beams, etc.; then multiply by ⅔ of a pound for each square foot filling 1 inch deep.

This rule is based on the assumption that each cubic foot of Granite Rock Wool averages 8 pounds compressed.

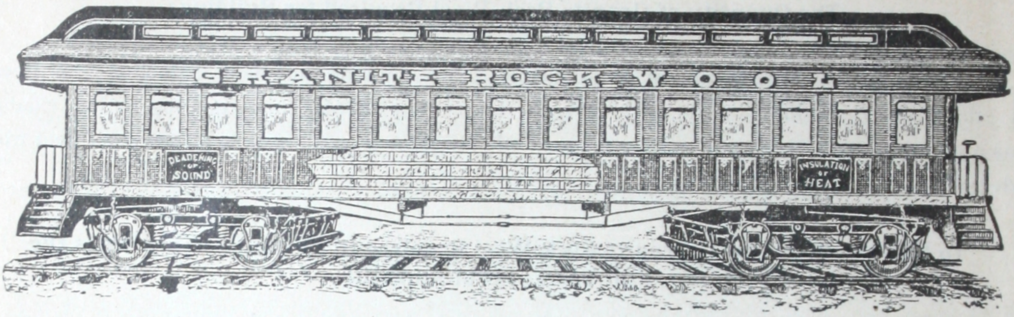
EXAMPLE (Granite Rock Wool).

Room floor 16 feet x 20 feet x 2 inches deafening.
16 feet × 20 feet = 320 square feet.
32 square feet, = 10 % for beams.
288 square feet, = net surface.
1⅓ pounds to each square foot 2 inches deep.
384 pounds Granite Rock Wool required.

The use of Granite Rock Wool in Car Construction adds only a few dollars to the cost of a car, and makes a car fire-proof, noiseless, and gives a greater comfort to the traveling public. You cannot afford to leave it out in the construction of your cars. Test it.

* * *

Car Building.



Granite Rock Wool as used by Railroad Companies in Passenger Coaches.

Permanent, Fire-Proof. Sound-Proof, Indestructible, Frost-Proof. Odorless

NOTE.—Used largely for protecting water tanks (to prevent freezing), oil tanks, supply pipes, train pipes. Locomotive boiler lagging made to fit any surface in special blocks, for filtering water, etc. Sample furnished gratis.

In refrigerator car construction, until the discovery of Granite Rock Wool, there has never been a material used that has given perfect satisfaction. Hair felt, being an organic material, rots and dries out, and is inflammable. Mineral wool is heavy, packs down, gives off sulphur when wet, and disintegrates. Granite Wool Rock is permanent, will not pack down, contains no sulphur, is chemically pure, will not disintegrate, is very light and contains a greater number of confined or dead-air cells to the cubic inch than any other material; cannot burn; is reasonable in cost.

In the case of cars, heat is lost both by radiation and contact of cold air, but the cooling by the first process is inconsiderable in comparison with the last. The motion of the car is an important factor, for, by reason of it, the second process is going on much more actively than in the case of a stationary structure. With great differences of temperature it has been shown that the loss of heat increases in a much higher ratio than that difference—in other words, the colder the weather, or the greater the difference between the external and internal air, the more rapid the extraction of the heat, and furthermore, as the speed of the car increases, the loss of heat increases, because of the contact of a greater amount of cold air in a given time. The proper ventilation of cars becomes a difficult matter only when they are in motion, because then the penetrating force of the exterior air is increased, and it is not possible to confine the inflow to the openings intended for it; but, on the contrary, the cold air is rushing through the cracks on all sides, in quantity increasing with the speed.

25 per cent less number of pounds required of Granite Rock Wool than any other wool made.

* * *

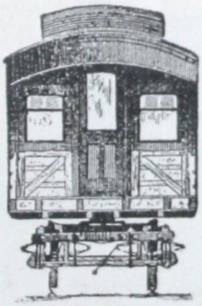
If traveling is to be made as luxurious *as it is advertised*, we must provide against all discomforts, such as exposure to draughts, and rapidly changing temperature in the winter season; to the intolerable heat of the sun in summer, and to the noise all the year round. A lining of *Granite Rock Wool* will accomplish these objects, because it is a poor conductor of both heat and sound. It is a most superior deadening substance and makes the cars noiseless. Its moderate weight adjusts the center of gravity of the car, and gives stability to the whole structure. A stove in one end or steam pipe will furnish sufficient heat, and the warm air will be found to follow along the floor, because it remains a warm surface, while the upper part of interior presents a cold surface and repels the heated air.

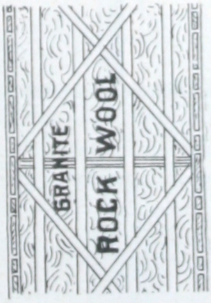
The practice of using the shop shavings and sawdust for a filling has for its support the reason that, since they are on hand and cost nothing, therefore, they are better than anything else. But how many cars have been quickly set on fire by the dry shavings after a collision, and how many people have been suffocated by the smoke from these, who might have been saved had an incombustible and fire extinguishing material been present.

The sides and ends of a passenger car need the protection quite as much as the floor, so that they are usually filled in to the base of the windows. The material may be applied without altering the construction of the car at all. The simplest method is to fill the floor space to full depth of beam, using half-inch matched stuff beneath for sealing boards.

Lately railroads fill sides completely, including roof.

The accompanying cuts show the method very plainly, and below we give figures which will enable anyone to estimate for whole cars or for parts of them.





Granite Rock Wool required for a 40 x 8-foot passenger car.

Floor, 7 inches thick, 94 cubic feet,	752 pounds.
Sides, 3 inches thick, 70 cubic feet,	560 pounds.
Ends, 3 inches thick, 10 cubic feet,	80 pounds.
Roof, 3 inches thick, 40 cubic feet,	320 pounds.

Do you know of any indestructible, fire-proof material that is odorless, light and permanent that is as cheap as Granite Rock Wool?

⁂

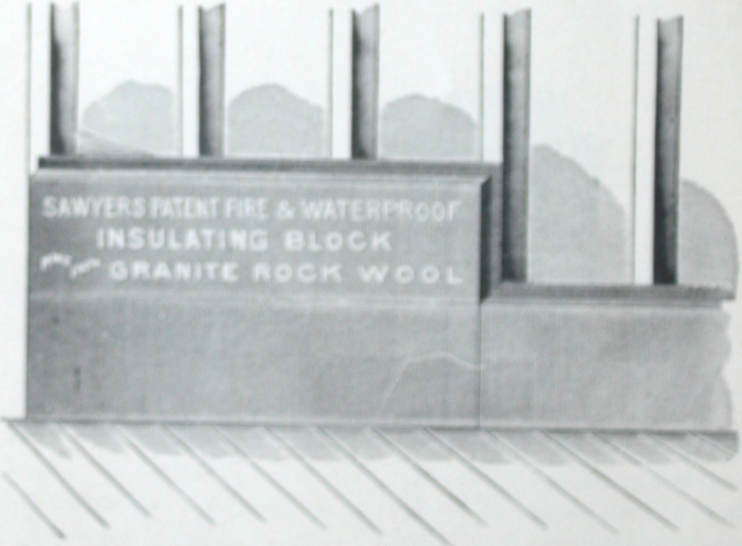
In Refrigerator Cars.

Granite Rock Wool with its unequaled properties as a non-conductor of heat and cold, having proved itself so much more valuable than any other material for insulating cold storage houses and refrigerators, in like manner excels all other modes of insulation in refrigerator cars. The decaying properties of hair, felt or other organic substances, the insufficient insulation of dead air spaces, the uncleanliness of certain other materials heretofore used, and the lesser non-conducting power of them all as compared with Granite Rock Wool, make every other device in use far inferior to Granite Rock Wool in making refrigerator cars what they are intended to be.

For Refrigerator Cars, Breweries, and *Insulated Walls,* use *Sawyer's Patent Fire and Water-Proof Insulating Block. Never packs down.* Absolutely permanent and most perfect and successful insulation known.

Sawyer Block, showing ship-lap, which is cemented with our liquid insulating cement.

By its use you can build up a solid elastic wall of perfect insulation. It will never pack down. Has been given the severest tests.



Cut, showing the simple and inexpensive application of Sawyer's Insulating Block. A sample sent free on application.

This Block is used largely for lining refrigerator rooms, refrigerator cars, dry-rooms, dry-kilns, etc., is a better non-conductor than any other block made, and is never affected by moisture as all other blocks made are. Write for full particulars.

Made any size or shape to order. Samples furnished free of charge.

Do not fail to correspond with us if you are interested in perfect insulation that is insulation.

All mineral wools manufactured contain sulphur and iron and cannot be freed by any process from them. Test their so-called free-from-acid wools and you will at once examine into the merits of Granite Rock Wool, which is chemically pure.

* * *

Relative Efficiency of Materials which Prevent the Waste of Heat in Greater or Less Degree.

No.	SUBSTANCE. One Inch Thick. Heat applied 310° F.	POUNDS OF WATER. Heated 10° F., per hour, by transmission through one square foot.
1	*Loose Wool*	3.1
2	*Live Geese Feathers*	9.6
3	*Carded Cotton Wool*	10.4
4	*Hair Felt*	10.3
5	*Loose Lamp-black*	9.3
6	*Compressed Lamp-black*	10.6
7	*Cork Charcoal*	11.9
8	*White Pine Charcoal*	13.9
9	*Anthracite Coal Powder*	35.7
10	Loose Calcined Magnesia	12.4
11	Compressed Calcined Magnesia	42.6
12	Light Carbonate of Magnesia	13.7
13	Compressed Carbonate of Magnesia	15.4
14	Loose Fossil Meal	14.5
15	Crowded Fossil Meal	15.7
16	Ground Chalk (Paris White)	20.6
17	Dry Plaster of Paris	30.9
18	Fine Asbestos	49.
19	Air Alone	48.
20	Sand	62.1
21	**Granite Rock Wool**	**13.**
22	*Paper*	14.
23	*Blotting Paper, wound tight*	21.
24	*Asbestos Paper, wound tight*	21.7
25	*Cork Strips, bound on*	14.6
26	*Straw Rope, bound spirally*	13.
27	*Loose Rice Chaff*	13.7
28	Paste of Fossil Meal with Hair	16.7
29	Paste of Fossil Meal with Asbestos	22.
30	Loose Bituminous Coal Ashes	21.
31	Loose Anthracite Coal Ashes	27.
32	Paste of Clay and Vegetable Fibre	30.9

The loss is indicated by the length of the lines. Incombustible material designated in Roman type; material which may be ignited in italics.

The substances given in the following table were actually tried as coverings for two-inch steam pipe, but, for convenience of comparison, the results have been reduced by calculation to the same terms as in the foregoing table.

No.	COVERING.	Pounds of Water Heated 10° F., per hour, by 1 sq. ft.
21.	**Granite Rock Wool**	**13.**
22	*Paper*	14.
23	*Blotting Paper, wound tight*	21.
24	*Asbestos Paper, wound tight*	21.7
25	*Cork Strips, bound on*	14.6
26	*Straw Rope, wound spirally*	18.
27	*Loose Rice Chaff*	18.7
28	Paste of Fossil Meal with Hair	16.7
29	Paste of Fossil Meal with Asbestos	22.
30	Loose Bituminous Coal Ashes	21.
31	Loose Anthracite Coal Ashes	27.
32	Paste of Clay and Vegetable Fibre	30.9

The Granite Rock Wool is chemically pure and free from sulphur and acids; absolutely odorless at all times; will not disintegrate.

⁂

Granite Rock Wool, made from Granite Rock, the best Known Insulator To-day.

THE main advantage in a cooler is the production of cold, dry air with the least amount of ice possible. In order to produce the lowest minimum cost for ice, Granite Rock Wool is the best medium known to science.

Granite Rock Wool is a vitreous substance converted to a fibrous condition. It is made by converting granite rock to a fibrous state. It partakes of the nature of glass and in appearance consists of a mass of very fine fibres interlacing each other in every direction, thus forming an innumerable number of minute air cells.

Granite Rock Wool is the only wool or fibre which is free from sulphur and acids and absolutely non-corrosive. No other wool or fibre should be and can be used for fillings and linings in ice chests, coolers, refrigerators and ice boxes.

One of the most important qualities of Granite Rock Wool is its unequaled power to resist the transmission of heat and cold. This can be readily accounted for in the fact that Granite Rock Wool holds in confinement a greater proportion of air than any other material.

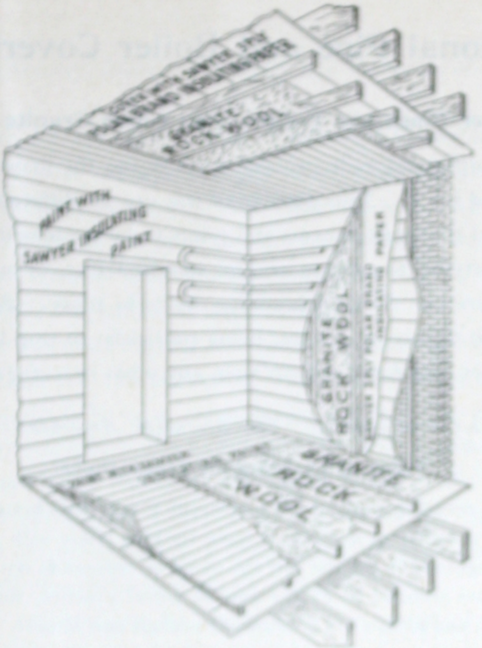
The following table of experiments made upon various materials, for the purpose of determining their heat-conducting power, was given in a paper read by Professor J. J. Coleman before the Philadelphia Society of Glasgow, Scotland:

Granite Rock Wool	**100**
Hair Felt	117
Cotton Wood	122
Sheep's Wool	136
Infusorial Earth	136
Charcoal	140
Sawdust	163
Gas Works Breeze	230
Wood and Air Space	280

Thus it will be seen that wood and air space conduct 180 per cent, sawdust 63 per cent, charcoal 40 per cent more heat and cold than our Granite Rock Wool, and consequently are poorer non-conductors and very much inferior to Granite Rock Wool as a lining and filling for refrigerators—Granite Rock Wool being twice as good a non-conductor as charcoal. Hence, coolers and ice chests filled with pure, clean, odorless Granite Rock Wool are the best and most economical to operate.

Cold Storage Insulation.

Insulating Materials that are (and that always will be) **Insulating Materials.**


COVER WITH SAWYER 3 PLY
POLAR BRAND INSULATING PAPER
GRANITE ROCK WOOL
PAINT WITH SAWYER INSULATING PAINT
SAWYER 3 PLY POLAR BRAND INSULATING PAPER
GRANITE ROCK WOOL
PAINT WITH SAWYER INSULATING PAINT
GRANITE ROCK WOOL

WE advocate the painting of the inside walls and ceiling of any place where products are stored with our Preservative and Insulating Paint, as all walls and ceilings can be washed off and kept clean and wholesome, and the life of the wood is prolonged.

We would always advocate the use of 2 to 6 layers of 3-ply Insulating Paper and 4 to 6 inches of Granite Rock Wool in walls, floors and sides of cooling chambers, cellars, refrigerators, ice boxes, etc.

Sawyer's Polar Brand Insulating Papers.

This line of papers is made from first-class stock and saturated with a special compound, which is in itself an *insulator* and *preservative* not affected by changes of temperature. These papers are thus rendered *water, gas, acid* and *alkali proof.* They are *air-tight, odorless* and contain *no coal tar.* They unroll freely, will *always* remain *pliable,* will *not crack,* and *will not deteriorate* with age. These papers are extensively used *under slate* and *metal roofs,* as they are water and gas proof and prevent corrosion. For *sheathing purposes* and any place where protection against dampness is required they cannot be equaled. They are also *vermin-proof.*

Sawyer's Polar Brand Insulating and Building Paper.

Especially valuable for use in lining refrigerators, ice and cold storage houses—for the sides, to protect them against dampness, and between floors, to render them waterproof. It is absolutely necessary to use paper of this description in refrigerators, ice and cold storage houses, on account of the *collision* in the *insulation* of *hot* and *cold* air, which causes *dampness,* and where ordinary paper is used this dampness will cause the paper to rot. By using the Polar Brand Paper you overcome all this trouble, as it *improves* with age, and moisture cannot penetrate it.

Put up in rolls, 500 square feet, 36 inches wide.

Price, per roll, - - - - 1-ply, $2.00; 2-ply, $3.00; 3-ply, $4.00.

Sectional Pipe and Boiler Coverings.

How to Cover Pipes and Boilers with Loose Granite Rock Wool.

IN covering exposed water pipes and underground steam pipes, the material must be held in place by a jacket expressly provided for it. This permits of the use of different styles of casings, according to the position and exposure of the work—seams and joints to be made with care. When special objects are to be attained, such as carrying the steam several hundred feet, or maintaining the initial pressure, use it liberally. Do not injure the fibre by jamming them in place. Allow all the air to remain that you find in it, and only press it tightly into place, being particular to stop leaks of steam.

Twenty-five to thirty per cent *better results* than any other *coverings*, barring none.

The following is from a recent issue of "*The Scientific American:*"

Value of Covering for Steam Pipes.

> A certain test of steam pipe coverings leads to the conclusion that it costs $15.40 to run 100 feet of naked two-inch pipe at from 70 to 80 pounds pressure for one year of 3,000 working hours with coal at $2.00 per ton. With the least efficient of insulating coverings used in the test this loss could be reduced $4.00; with the most efficient to $2.64. Striking as are these figures they are probably below the cost of actual practice, for a steam pipe is under pressure usually more than ten hours a day, and $2.00 a ton is below the average cost of coal.
>
> Prof. Chas. Gibson, in some tests for the Manufacturers' Mutual Insurance Co. some years since, reached the conclusion that with coal at $4.00 per ton and 3,000 working hours per year, the loss from a naked two-inch pipe was 64¼ cents per lineal foot—considerable more than Mr. Dickinson's test would show even with coal at $4.00 per ton. However the lowest of the estimates shows the importance of covering the pipes, and it is a good thing to attend to before the present loss is increased by the coming cold weather.—*Scientific American.*

Granite Rock Wool.

We claim for the Granite Rock Wool Coverings that they are without a superior in non-conducting efficiency, durability, handsome appearance and ease of removability and re-application. It pays to get the best insulation, because you make a larger saving of coal and earn more money thereby, and that is the main reason why you cover, although in addition to the saving in steam and fuel, the following advantages make the use of Granite Rock Wool Coverings of equal importance and necessity.

1st. You can convey steam or hot water at its original temperature to any point, no matter how far distant from the boilers or furnaces.

2nd. You work dry steam in your Engine Cylinders and thus avoid all risks of accidents or break-downs.

3rd. You save wear and tear on your boilers and prolong their life by avoiding the necessity of excessive firing to keep up the requisite amount of steam.

4th. Your grates will not require renewing as frequently as formerly.

5th. Your engine will run nicely and smoothly and give better results in developing power.

6th. *It increases the efficiency, insures the safety and decreases the expense of operation of any steam plant.*

7th. Covering pipes with Granite Rock Wool Fire-Proof Coverings will prevent many mysterious conflagrations, which originate from wood and other combustible materials being too near or coming in contact with uncovered steam pipes and other steam heated surfaces. Especially is this noticeable where pipes are laid between the joists or near woodwork of any kind. *This fact cannot be too largely dwelt upon by manufacturers and all steam consumers.*

8th. *Their use materially reduces the cost of insurance.*

9th. They increase the power of engine, also steam capacity of boilers.

10th. For heating purposes you can convey hot water or dry steam to any part of the buildings, no matter how far distant from the boilers, as condensation and radiation and consequent loss of heat is prevented until it reaches the rooms where it is to be utilized. You obtain the heat where you want it and prevent it from being wasted in the basement and lower floors of the building, thus making them nice and comfortable instead of stifling, close and hot as is generally the case.

11th. If your boiler can not produce sufficient steam and requires forcing the covering will assist. In many cases the covering will save the cost of an additional boiler.

12th. ☞Covering will not only pay for itself in a few months by saving fuel, etc., but it will continue to save the amount of its cost *regularly* thereafter, therefore no money can be more judiciously expended or secure greater returns than that spent in the purchase of Granite Rock Wool Coverings.

13th. Pipe covering is no luxury, but an actual necessity, and no investment has ever paid more handsome dividends.

Economy in the use of coal is a matter of great and growing importance.

It is estimated that the annual production of coal in the world at the present time is not far from 400,000,000 tons. The report of the Royal Commission in England in 1870 shows the distribution at that time to have been as follows:

Metallurgy and Mines, - - - - - -	44 per cent.
Domestic Purposes, including water and gas,	26 per cent.
General Manufacturing, - - - - - -	25 per cent.
Locomotion by Sea and Land, - - -	5 per cent.

As a considerable part of the coal used in metallurgy and mines, as also for domestic water supply, is used for power, we shall not be far wrong in estimating that one-half of all the coal mined, or 200,000,000 tons annually, is used for making steam. While engineers have given much care to the improvement of the steam engine and boilers, little care has been given to the medium employed to protect the steam after it is generated. You can readily see from the above article from the *Scientific American* the enormous wastage of power that occurs when the pipes are not insulated.

For Description of Brine and Ammonia Sectional Pipe Covering see page 31.

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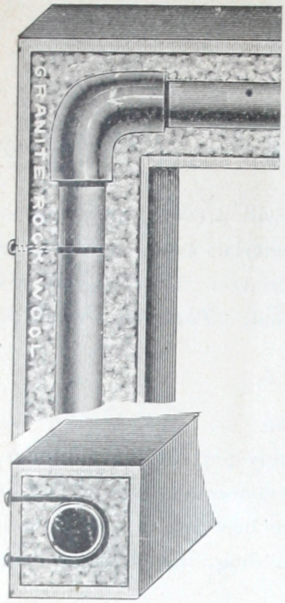
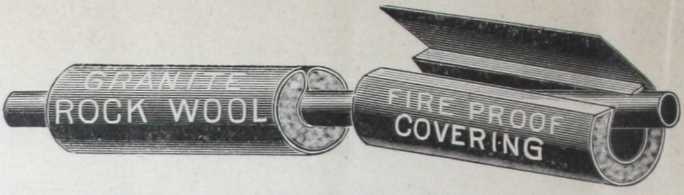




Our Granite Rock Wool Sectional Covering.

For Steam Pipes and Boilers.

Patented May 1, 1892.

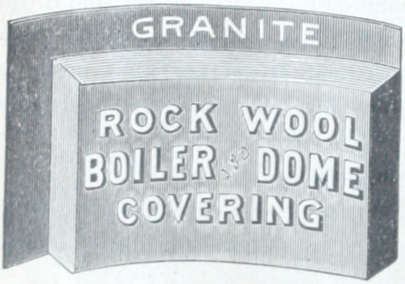
THE ONLY PURE AND NON-CORROSIVE PERMANENT WOOL COVERING EVER MADE.

ABSOLUTELY pure and free from sulphur, iron, acid and injurious chemicals. Best non-conductor for all steam or fire heated surfaces. Made in sections, three feet long, to fit any pipe. Above cut represents one section applied and closed on the pipe and the other section open, but about to be closed by folding and passing down the lap.

Boiler Covering.

Made in blocks, three sizes, covered with thick asbestos sheeting and filled with 1½ inches Granite Rock Wool.

For Water and Gas Pipes.



These coverings are suitable for gas and water pipes to keep them from freezing. When the exposure is great or the temperature reaches a low point, we advise protecting water pipes by packing the bulk wool around them to a thickness of three or more inches.

All our Granite Wool Sectional Coverings have a lining of asbestos and canvas casings on the outside.

The covering is flexible, and is much less liable to receive damage from outside concussions than coverings made of plastic and brittle materials.

Price List of Granite Rock Wool Sectional Coverings.

Inside Diameter of Pipe.	Outside Diameter of Pipe.	Paper Casing Canvas Covered.	PRICE PER FOOT IN LENGTH.	Inside Diameter of Pipe.	Outside Diameter of Pipe.	Paper Casing Canvas Covered.
½ inch.	⅞ inch.	21 cents.		4 inch.	4½ inch.	50 cents.
¾ "	1⅛ "	22 "		4½ "	5 "	54 "
1 "	1⅜ "	25 "		5 "	5½ "	60 "
1¼ "	1⅝ "	26 "		6 "	6⅝ "	66 "
1½ "	1⅞ "	30 "		7 "	7⅝ "	72 "
2 "	2⅜ "	32 "		8 "	8⅝ "	84 "
2½ "	2⅞ "	36 "		9 "	9⅝ "	91 "
3 "	3½ "	42 "		10 "	10¾ "	98 "
3½ "	4 "	45 "		12 "	13 "	114 "

For boilers, drums, etc., 40 cents per square foot. Liberal discount to the trade and on orders for large quantities.

September, 1894, edition, page 8, of "*Power*," the largest engineer and steam power journal in the United States, contains following testimonial of tests taken by Chief Engineer Walter Meyer Dickinson:

> "Under seven tests of different coverings, I have to state that the Granite Rock Wool Covering is the best. I found it the best non-conductor; it does not contain anything that will harm the pipe. It is also fire-proof, and saved more fuel than any other covering."

Price List of Material for Fittings.

In estimating the cost of fittings, double the price of one foot of same size pipe.

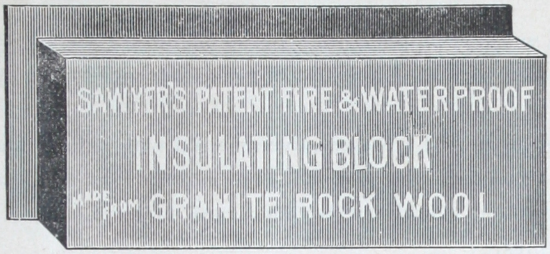
Write for Estimates.

Granite Rock Wool Slabs are indestructible, and will last as long as the building they are used in.

⁂

The Sawyer Patent Insulating Block.

Fifty per cent more efficient than any other Block or Slab made.


SAWYER'S PATENT FIRE & WATERPROOF
INSULATING BLOCK
MADE FROM GRANITE ROCK WOOL

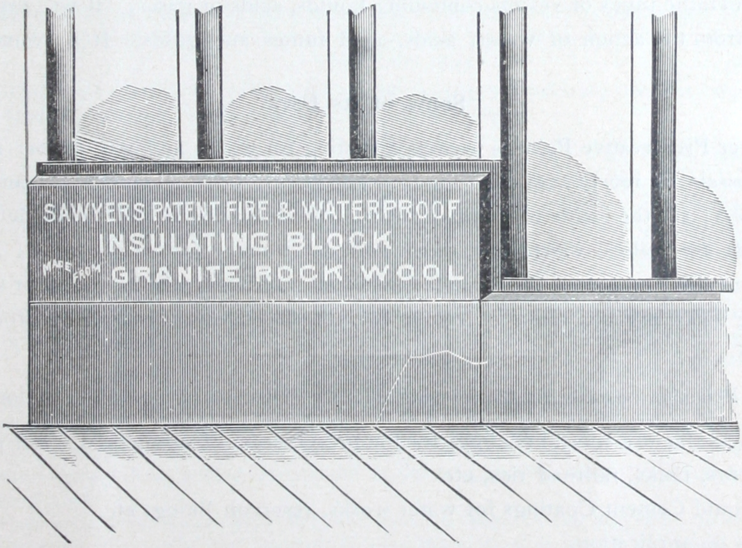
Sawyer Block, showing ship-lap, which is cemented with our liquid insulating cement.

Insulating around Ammonia and Brine Tanks, etc.

For breweries, cold storage rooms, ice houses, etc.
For refrigerator car building, ice boxes, etc. Special sizes made to order on short notice.

Price, per square foot, - - - - - - 20 cents

Put up in stock sizes, 18 x 36 in. and 18 x 24 in., encased in Sawyer's 3-ply Polar Brand Insulating Paper unless otherwise ordered.



Cut, showing the simple and inexpensive application of Sawyer's Insulating Block. A sample sent free on application.

We also carry, made up in stock, for drying rooms, dry kiln rooms, lining around boiler rooms, powder magazines, etc., this same constructed block in the above sizes, encased in an Asbestos Casing, at 20 cents per square foot.

We furnish a special liquid cement for making joints tight.

Sawyer's Polar Brand Insulating Paints.

THE materials to which we have applied this special name are the result of experiments, covering several years, upon which we have employed the most advanced chemists in this line that are to be found in this country.

It has been our endeavor to find a preservative material with high insulating properties, that would be least affected by change of temperature, impervious to moisture and to the action of acids and alkalies, that would have no offensive odor, would not be dangerous to handle, and that would remain elastic under all ordinary temperatures.

We have been successful, and are now able to offer to the trade the Sawyer Preservative Paints and Insulating Electrical Compounds, with our guarantee that they possess superior qualities to anything heretofore offered for the purposes for which we recommend them.

Preservative Paint—Points of Superiority.

The Sawyer Paint is not dangerous to handle. It has no offensive odor at any time. When dry it is odorless. When dry it is tasteless. It will not affect the taste of water. It will not affect the taste of food products. It is very penetrating. It is waterproof. It is acid proof. It is alkali proof. It contains no coal tar. It is a protection against the absorption of liquids by wooden vessels. It prevents the corrosion of metallic pipes or vessels containing liquids, acids or gases. It will preserve wood, brick, cement and iron from the action of water, acids, acid fumes and gases. It prevents rust. It always remains elastic.

Some of its Uses.

The Sawyer Preservative Paint is used as a coating for water and gas pipes; for water and gas tanks; for all vessels or receptacles made to contain water, beer, cider, ale or any other liquid; for water or gas meters; for the inside of pumps; for trolley, electric light and telephone poles, both above and under ground; for boilers, machinery, pipes and car trucks; for steam pipes; for smoke stacks; for brine and ammonia apparatus; for foundations of all buildings, whether brick or stone; for metallic roofs; for closing leaks in walls, tanks or roofs; for all places where protection from water, acids or alkalies is needed.

Price, in barrels, $1.50 per gallon; in 5 gallon cans, $1.60 per gallon.

We also manufacture special coatings for the preservation of submerged wood-work, piles, bridge timbers, wood floors, tanks, railroad ties, etc.

Special Liquid Cement Coatings for water works, reservoir lining, etc.

Quotations on application.

The Granite Rock Wool Coverings are in use in some of the largest plants in the country. Once used, always used.

* * *

References.

WE give below the testimonials of a few of the thousands using our products. These parties are able to use the best. We suggest to all who desire further proof of the success of our materials to write to the users of our products. We will cheerfully and promptly answer all inquiries.

St. Louis, July 19th, 1898.

Dear Sir—We have used your loose wool for insulating our Oil and Gasoline Tanks, and have also used your pipe covering, both in this country and the Republic of Mexico, and can testify to its excellence as an insulator.

We are inclined to believe that for the purposes which your products are available they are the best in the market.

Yours truly, The Waters-Pierce Oil Co.,
By J. P. Gruet, Secretary.

St. Louis, January 11th, 1897.

Dear Sir—In answer to yours of the 9th inst., would say that I have been using the "Nature's Own" Filter for the past two years in my residence, and am pleased to say that same has given most excellent satisfaction, always having clear water at home. I do not hesitate in recommending same to any one desiring pure water.

Very respectfully, Wm. F. Nolker.

St. Louis, January 19th, 1897.

Dear Sir—In response to your enquiry as to the efficiency of the Filter you placed in my house, I wish to express my unqualified gratification in the possession of a device that so thoroughly accomplishes the purposes for which it is intended. I have now had the Filter in use for more than a year, and during that time it has filtered water of all degrees of turpidity, and I make no reservation in stating that I know of no Filter that will discharge near so much filtered water with anything like the same degree of clearness that will not cost several times the money that I have invested in yours.

Very truly, Wm. A. Haren.

St. Louis, January 16th, 1897.

Dear Sir—In reply to your favor of recent date enquiring how the Filters work which you put in my house, I am glad to inform you that I am very well pleased with them. They work far better than I expected, in fact, better than anything I have seen so far, and I don't know of any improvement that can be made on them. The water after passing through the Filter looks just about the same as our well water—you know we have a very fine well in our yard—and on comparing the filtered water with the well water I cannot tell the difference, so far as appearance is concerned.

Yours very truly, John J. O'Brien.

Mr. O'Brien makes some further remarks and suggestions in regard to filtering the water supply for large plants, which we omit, as it is not the purpose of this catalogue to touch this subject. M. & M.

St. Louis, January 20th, 1897.

Dear Sir—We have been using your Filter in our establishment for the past year and a half, and it has given satisfaction both in quantity and quality of water supply. It has given us no trouble or care in the management. We can recommend it to all users of river water.

Yours truly, Ward & Hopkins Catering Co.,
Herbert R. Hopkins, Secretary and Treasurer.

St. Louis.

Dear Sir—It is the only Filter that has ever given perfect satisfaction. I have previously tried both the sand filter and the stone filter, to both of which there are serious objections. I consider your filter the only good filter in use.

Yours truly, Ellis Wainwright.

St. Louis, March 18th, 1893.

Gentlemen—With pleasure we inform you that we are using your Granite Rock Wool for all our refrigerators, fish and oyster boxes, etc., which we find far superior to charcoal, slag wool or any other insulator. We have made tests of all the insulators known to us, and we are pleased to inform you that Rock Wool came out ahead of all the others, charcoal coming next.

The Granite Wool being free from sulphur and lime, which is found in the slag wool, no chemical action takes place, thereby destroying the fibre. We can recommend your Rock Wool in the highest terms, and wish you all the success you deserve.

Yours very truly, Gus. V. Brecht Butchers' Supply Co.,
G. V. Brecht, Treasurer.

East St. Louis, Ill., May 20th, 1893.

Gentlemen—In reply to your favor of 16th inst., we take pleasure in saying that our entire cold storage and ice storage houses were insulated with your Granite Rock Wool, and up to the present date we are entirely satisfied with the results.

We beg to remain, yours truly,
East St. Louis Ice and Cold Storage Co.
Geo. W. Pike, General Manager.

Result of Tests made by Doctors Geo. F. Hulbert and Geo. W. Cale.

St. Louis, March 25th, 1895.

Dear Sir—We respectfully submit the following report relating to our examination of the sample of water furnished from the "Nature's Own" Filter. The sample was taken from the filter on the twenty-first day of service of the filtering medium, and received into a sterilized bottle, hermetically sealed on the instant of filling. This was allowed to stand two weeks in a room, the temperature of which was kept at 80° Farh. Culture tubes of sterilized glycerine agar were inoculated with the water from the above bottle the sixteenth day after its being placed therein, and these sterilized tubes and contents sealed with sterilized absorbent cotton and placed in the incubator oven and kept at a temperature of 99° Farh. for a period of ten days. As a result of these experiments we found that the water, which was perfectly clear and free from any visible contamination, gave no evidence of decomposition or change, or any evidence of germ growth or moulds, and that the culture tubes showed likewise an entire freedom of any germ life or mould. This clearly establishes for the "Nature's Own" Filter the fact that it is competent and efficient in eliminating all germs and influences that cause decomposition or impurity of any kind, and we can safely testify that in our judgment the water that passes through the "Nature's Own" Filter is an ABSOLUTELY PURE and STERILIZED WATER. No chemical test was made for the reason that the Mississippi water is sufficiently well known, and any tests in this direction would only show the same results as have been frequently obtained, namely, a wholesome water for the use of man and beast. Our work was to determine the fact of the presence or absence of germs or organisms which would or would not be present. The result clearly shows an entire absence of these.

Respectfully submitted, Geo. F. Hulbert, M. D.,
President Woman's Hospital.
Geo. W. Cale, M. D., F. R. M. S. London,
Director of Bacteriology Woman's Hospital.

St. Louis.

Dear Sir—I wish to express my unqualified gratification in the possession of a device that so thoroughly accomplishes the purpose for which it is intended. It has filtered water of all degrees of turbidity, and I make no reservation in stating that I know of no filter that will discharge so much water with anything like the same degree of clearness, that will not cost several times the money I have invested in yours. Yours truly, Wm. A. Haren.

St. Louis, June 1st, 1893.

Gentlemen—We have used your Granite Rock Wool on two water closets that have been put outside on a porch, and pipes have been packed with Granite Wool, and for the last two years we were never troubled with frost. We have concluded to use your wool in many of our buildings and those of our clients and recommend your product as the best non-conductor known to-day. Allow us to remain, yours truly, J. Cavanaugh & Bro.

St. Louis, March 16th, 1893.

Gentlemen—In reply to your letter of the 16th inst., we beg to say that the Granite Rock Wool which you have furnished to us for a number of our refrigerator houses throughout the country has given the very best of satisfaction. We have several refrigerator houses in the mountain regions of Utah, where we have to protect our beer from the cold more than from the heat—for the thermometer sometimes gets as low as 50° below zero—and we have never had any trouble with frozen beer in any of these since we have used your Granite Rock Wool. As a matter of course, it affords the same protection against heat as it does against cold; at least such has been our experience.

We wish also to add that we have never found any bad odors to arise in the refrigerator houses where we have used your Granite Rock Wool, as would naturally be the case if your wool contained any sulphur.

Yours truly, Anheuser-Busch Brewing Association,
C. E. Soest, Corresponding Secretary.

St. Louis, July 20th, 1896.

Gentlemen—Replying to your inquiry, of this date, regarding the merits of Granite Rock Wool, as distinguished from Slag Mineral Wool, we are pleased to state that our experience with it has been quite extensive and that for the past three or four years, in fact ever since we have been able to procure the Granite Wool, we have invariably specified it in our work. The points of superiority which we believe it possesses are:

First—That the wool is very much purer and does not corrode with moisture, as is the case with the slag wool.

Second—Owing to the nature of the material it runs very much better in the corresponding grades of the two kinds of wool.

Third—Owing to its purity the workmen in handling it avoid inflammation or irritation that is produced by the slag wool in any small abrasions of the skin that may occur upon their hands, and are, therefore, more willing to handle it.

Fourth—We find in Granite Wool there is none of the offensive odor that exists in the slag wool after it has been exposed to moisture.

On the whole we have believed it very far superior to the slag wool and take pleasure in recommending its use generally.

Very truly yours, E. Jungenfeld & Co.,
Architects for Anheuser-Busch Brewing Ass'n.

Washington, D. C., May 25th, 1893.

Gentlemen—After a very careful examination into the merits of boiler and pipe covering, I do heartily endorse your Granite Rock Wool as the most perfect non-conducting, non-corrosive and durable boiler coverings I have used or seen in use. Wishing you best success, I remain, yours respectfully, J. W. Jackson, Chief Engineer.

St. Louis, Mo., May 6th, 1893.

Gentlemen—We used your Granite Rock Wool in the construction of our beef and pork coolers, which were built a little over a year ago. During this time they have been put to a very severe test, being constantly filled with beef and pork to their utmost capacity.

We are pleased to inform you that the result has been so eminently satisfactory to us that, when we concluded last fall to build an addition of five coolers to our plant, we selected your Granite Rock Wool for insulation, as we regard it by far the best insulator on the market to-day.

There are no bad odors discernable in our coolers, proving that your Granite Rock Wool is absolutely free from sulphur and acid, which is found in slag wool.

Wishing you success, we remain, yours truly,

St. Louis Dressed Beef and Provision Co.,
Gust. Bischoff, Treasurer.

Ovid, Mich., January 1st, 1893.

Gentlemen—In answer to your favor of December 25th, 1892, regarding our experience with your Granite Rock Wool, we have this to say—that it has given us the very best satisfaction. We packed and lined our walls properly, as ordered, filling the spaces per pound to the cubic foot, as represented. It is far superior to slag mineral wool, as it is odorless and does not contain any sulphur. We understand that you own the patent to manufacture wool out of granite rock, and congratulate you to possess a process to manufacture an article which is free of sulphur and poison, and recommend your Granite Rock Wool wherever we can. Allow us to remain, yours very truly,

Clinton County Fruit Co.

St. Louis, Mo., May 22d, 1893.

Gentlemen—Your Granite Rock Wool which you sent to me was chemically analyzed by me and I certify and report as follows:

1. The Granite Rock Wool is absolutely free from sulphur.
2. It does not contain any acid or injurious chemicals.
3. It is odorless.

No acid could be found which could act corrosive on iron, zinc, tin or any other metals, therefore it is non-corrosive. Yours respectfully,

Dr. E. Lesser,
Asst. of Prof. Sanger, Washington University.

St. Louis, Mo., April 28th, 1893.

Gentlemen—In response to your inquiry of even date, would say that we have used your Granite Rock Wool in great many instances for insulation of cold storage buildings and have invariably found it entirely satisfactory in every respect. Very respectfully,

E. Jungenfeld & Co.
Robt. W. Walsh.

Gentlemen—With pleasure I inform you that I have succeeded in deafening the sound in my dancing and party hall with Granite Rock Wool. At one of my entertainments, at which over 500 people participated, the sound was deafened so that the guests in the hotel occupying the rooms under the hall were not disturbed in the least. I only regret that I did not use your Granite Rock Wool for every room and hall in my hotel.

Wishing you the success you deserve, I remain, most respectfully,

Edward Dieterle,
Prop. Tower Grove Hotel, St. Louis, Mo.

St. Louis, March 25th, 1895.

Dear Sir—The sample of water filtered by your new process has been by me subjected to the most crucial tests. To determine its purity I have examined it microscopically and bacteriologically, and can say that it is perfectly wholesome, containing neither foreign matter nor germs.

Further, its sparkling and beautiful appearance is due to its purity and to the presence of a quantity of pure air not found in boiled water and so essential to all healthful waters. Yours truly,

J. L. Ingram, M. D.,
Prof. of Microscopy and Bacteriology, Am. Medical College, St. Louis.

St. Louis, Mo., March 20th, 1893.

Gentlemen—We have used your Granite Rock Wool as sound deafener in the Beethoven Conservatory of Music and found it to give perfect satisfaction; and we intend to specify the same whenever we have occasion to do so.

Respectfully yours,

Beinke & Wees, Architects, 4th and Locust streets.

St. Louis, July 20th, 1896.

Gentlemen—Answering your verbal inquiry regarding Granite Rock Wool, we take pleasure in testifying to its merits and superiority over all non-conducting and insulating materials.

We have made practical tests and can say that we have found it to possess decided advantages over other non-conducting materials. Its freedom from sulphur, acids, iron and other chemicals is especially in its favor. We beg to state that we have renewed our contract for the material for the entire year 1896, using it exclusively in all of our ice boxes, refrigerators, cold storage houses, and wherever insulation from heat is an object.

Yours respectfully,

St. Louis Refrigerator and Wooden Gutter Co.,
W. Grayson, Secretary.

Filtration.

See pages 23, 24 and 25 for Testimonials. See page 2 for Analyses.

GRANITE ROCK WOOL is now used extensively as a filtering medium. A more rapid and more simple filtering body is formed by the use of Granite Rock Wool than any other substance. Granite Rock Wool is purer, as proved by the most careful and reliable analyses; it is more permanent and more easily cared for; is the cheaper, chemically pure and most efficient medium there is. It can be used by the individual or a large municipality for filtering. Water filtered through it has shown by tests to be nearer chemically pure than any other filtered water.

Granite Rock Filtering Wool weighs 3 to 5 pounds to cubic foot, put up in 50, 100 and 200-pound cases. Price, $100 per ton; 15 cents a pound in 10-pound cartons.

We give below facts regarding a perfect family filter.

Important Truths About the Emery Granite Rock Wool Filter Worthy of Careful Attention.

In determining the purchase of a filter its hygienic properties are of first value and should never be put aside for mere sightliness of appearance. No better source of good health and vitality is found than the use of pure water, and no more prolific source of disease and contagion is known than the deadly impurities of contaminated water. The prevalence of those deadly scourges of our civilization, diphtheria and typhoid, is largely traceable to bad, impure or infected water.

It is now conceded by the highest medical and scientific authorities that the most general cause of these and kindred diseases is to be found in a polluted water supply. The prevailing idea that the muddy water incidental to the spring and fall floods is alone to be considered dangerous water is a serious error; the truth is, the slow-moving water of winter and the drought of summer are as fruitful, by reason of the decaying vegetable matter washed into the stream.

The value of some simple method whereby our river, well and cistern water can be freed from their impurities cannot be overestimated, and in offering to your thorough test our Emery Granite Filter we present a means at once the simplest, most efficient and most economical. The low cost of our filters place them within the reach of all.

Why the Emery Granite Filter is the Best.

Because it is the cheapest, an Emery four dollar filter equaling in capacity any twelve dollar article of other make.

Because it is easier to clean, our filtering bucket being so simple and handy that a child can take care of it.

Because its filtering fibre is made from a solid piece of granite rock, consequently the mountain stream that trickles from the earth's own bosom is not any purer.

Because it is many times the simplest article of the kind on the market, nothing to get out or order and will last a lifetime.

Directions for Use and Regulation of the Emery Granite Filter.

Pour several gallons of water into filter, allowing same to run through, and filter will then be ready for use. But the best results must not be looked for within several days, as it requires a few days for the filtering fibre to reach proper degree of contraction; at end of that time the filter will operate not quite so rapidly, but the water will be purer and cleaner.

To Cleanse Filter.

Wipe off mud with soft cloth or sponge (don't use brush) and rinse with filtered water.

Should filter fail to let water through at any time, put about one pint of filtered water in the filtering apartment and press with fingers lightly all around surface of disk and wire netting holding filtering fibre in place; then pour off the resultant muddy water. Repeat operation if necessary.

With ordinary care filter will not need repacking more than once or twice a year, and this can be done by any member of the household at a cost of from 10 to 30 cents, according to size of filter. We have the sole right to use Granite Rock Wool for filtering purposes, and we caution purchasers to avoid the risk and danger attached to use of other similar materials which are claimed to be as good as our product, but which in reality are full of deadly chemicals and acids.

To Repack Filter.

Unscrew nut from center bolt; remove old filtering fibre; pack in new filtering fibre even and tight; replace disk and wire cloth; then screw down tight.

Prices.

No. 0 Filter Bucket	$2 00
No. 1 Filter and Stone Jar complete	6 00
No. 1 Filter and Cooler combined, 4 gallon cooler	8 00
No. 2 Filter and Cooler combined, 6 gallon cooler	10 00
No. 3 Filter and Cooler combined, 10 gallon cooler	12 00
Holders for No. 0 Filter Buckets	6 00
No. 4 Porcelain Lined, 6 gallon cooler	15 00

The annexed testimonials speak for themselves, and attest the value of our goods far better than any argument we can present.

St. Nicholas Hotel, Eighth and Locust Streets.
Sanitary Division, St. Louis City Health Department, 1121 Market Street.
Pacific Express Company, Fourth and St. Charles Streets.
Bemis Bros. Bag Company, 601-613 South Fourth Street.
Ryan & Cannon, 501 North Broadway.
Ely & Walker Dry Goods Company, 1129 Washington Avenue.
Delicatessen Lunch Room, Olive, near Second Street.
Criterion Restaurant, 416 Morgan Street.
Mound City Paint and Color Company, 811-813 North Sixth Street.
Geo. W. Sanders, President Sanders Duck and Rubber Company.
Dr. J. K. Bauduy, 2808 Olive Street.
Steamer Grey Eagle, St. Louis.
Steamer Gleaner, St. Louis.
Dr. John H. Simon, 4323 Manchester Avenue.
Charles Corneli, Newstead and Finney Avenues.
Waldorf Buffet, Sixth, between St. Charles and Locust Streets.
Memphis and Vicksburg Packet Company, Memphis, Tenn.
Steamer John S. Hopkins, Evansville, Ind.

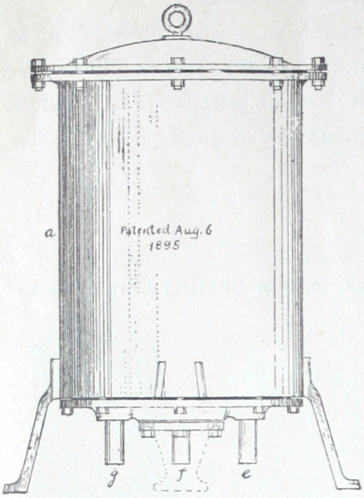
Nature's Own Filter is attached to inlet water-pipe and filters all water before it passes through the building.

"Prove all things; hold fast that which is good."

* * *

Filtration.

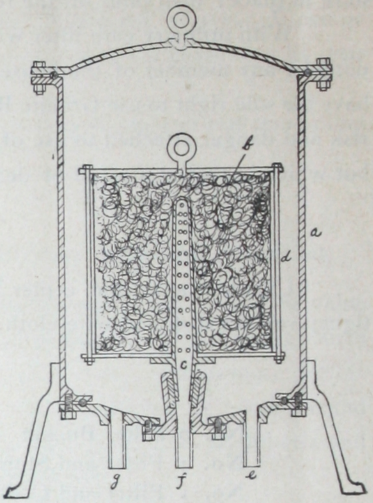
Nothing is so pure for filtering purposes as Granite Rock Wool Fibre.



"Nature's Own" Filter Complete.

EXPLANATION.

a. Outer Shell.
b. Filtering bed of granite fibre.
c. Perforated tube.
d. Clamping rods.
e. Inlet Pipe.
f. Discharge pipe for filtered water.
g. Washout pipe.



Sectional View.

"Nature's Own" Pressure Granite Rock Wool Filter.

Filter Patented August 6th, 1895, by M. L. Mitchell.

Completely fulfills every requirement of an ideal filter.

1st. It make the water clear, pure, palatable and soft, because the filtering medium employed, Granite Fibre, is of itself absolutely pure, and owing to the wonderful fineness of its fibres presents an impassable barrier to every form of organism or germ that may be contained in the water.

2nd. It furnishes an abundant supply for all domestic purposes.

3rd. It requires no care or attention on the part of the user, because the filtering bed is renewed as often as may be necessary, thus removing all accumulated impurities and giving practically a new filter at frequent intervals. This is a most important and distinctive feature.

4th. No alum or other coagulent is employed.

5th. It is sold under the positive guarantee that it will give satisfaction.

6th. It is lower in price than any other filter of like capacity, and the expense of renewing the filtering beds is less than the cost of keeping other filters in order.

Pure Water a Necessity, a Comfort, a Luxury to all Householders.

The proper filtration of the water that is used in every household is a problem of ever increasing importance, and upon its solution depends not only the comfort but the health of every human being. As population becomes more dense, the causes that render the natural water supply impure and, therefore, unfit for domestic uses multiply at an alarming rate. Rivers are polluted by sewage and surface drainage carrying filth of every conceivable character, and wells or cisterns are entirely useless in cities. That the water as it flows from our hydrant pipes is simply execrable every one knows, and all sensitive persons as well as strangers who are accustomed to a purer article are disgusted at the thought of being obliged to use it. Only necessity, that knows no law, forces us to endure the evil and has in a measure inured us to its abominations.

Well may we paraphrase the words of Coleridge, and exclaim:

> "Water, water everywhere, nor any drop (fit) to drink."

To overcome this evil filters without number have been devised, and for all of them most extravagant claims have been made. It is not our purpose, nor do we deem it necessary, to disparage others in order to advance our own. We merely want to make a plain statement of facts and are satisfied to submit our claims to the judgment of your common sense.

To merely clarify water is not the only nor the most important function of a filter. Water may look clear and may yet be so polluted as to be absolutely unfit for use. To make water suitable for all domestic purposes it must be (1) CLEAR, to satisfy the sense of sight; (2) PURE, namely, absolutely free from all organic matter or germs, and uncontaminated by the introduction of injurious chemicals through artificial means of filtration; (3) PALATABLE, effected by not depriving the water of the air it naturally contains; and (4) SOFT, to make it fit for washing with soap and not injurious to the skin.

All of this must be accomplished without putting the uses of the filter to an undue amount of trouble in taking care of it, or an exorbitant expense either in first cost or the after care.

Do any of the filters heretofore offered for sale meet these requirements?

The reason why the "Nature's Own Filter" is so satisfactory in its operation and gives such perfect results we will briefly explain.

First of all we dispense with the use of alum or any other coagulant, for the reason that the evils arising from such means far outweigh the benefits.

Next, we do not resort to washing out the accumulations of dirt, as any process of washing will only partially and very imperfectly remove it. The dirt that accumulates on the outer surface of a filtering bed may be washed off to some extent, but the finer particles of organic matter, germs or microbes that penetrate into the interior and attach themselves in shape of slime to the walls of a filter cannot be dislodged by any process of washing. The only practicable and safe plan is to absolutely destroy them by RENEWING the entire filtering bed at frequent intervals and thoroughly scrubbing out the interior surface of the filter. This is the method we employ. We know from experience that one of our filtering beds will do perfect work for a period of time, varying according to the state of the water and the quantity filtered, from one to three months. Whenever the water shows signs of imperfect filtration by an appearance of slight cloudiness, we replace the old filtering bed with a new one, thoroughly cleanse the filter, and give you to all intents and purposes a NEW FILTER. Even after the water shows this cloudiness it may still be relied upon as being pure and healthful, because coloring matter in solution will pass through where all other impurities are effectively barred.

In the search for the most perfect filtering medium science has come to our aid. GRANITE FIBRE is a product of manifold utility in various ways, but for the purpose of filtering water no material approaching it in effectiveness has yet been discovered. Nothing purer or cleaner can be imagined—granite rock, fused by great heat and then blown into fibres by means of a steam jet composes it. The fibres are so wonderfully fine that many of them are barely perceptible to the naked eye. When this material is compressed into a solid mass it forms a network of these fine fibres, crossing and interlacing in every direction, so that the minutest impurities or germs contained in the water are intercepted at every point and arrested in their course.

A further and most important quality of this material is that even when compressed it contains a much larger percentage of air than any other material used as a filtering medium. This is very essential in order to make water palatable and wholesome. An eminent authority on water filtration states:

"The value of a filtering medium will be found to depend chiefly on the power it has of bringing oxygen stored within it into chemical action with the dissolved organic matter and destroying it."

While the "Nature's Own Filter" is now placed on sale for the first time, it is by no means an untried experiment. It has been thoroughly tested in every conceivable way during the past two years and has proven eminently satisfactory wherever it has been placed.

The inventor, Mr. Mitchell, wanted to be absolutely certain that the filter would give satisfaction under any and all circumstances before offering it for sale in a general way, even though in his own mind he has felt quite sure of this fact long since.

NOTE.—For testimonials see pages 23, 24 and 25.

* * *

To meet the demand for a small sized filter, we have designed

The "Clearfont."

The work this little machine does must be seen to be appreciated. It is attached to any pipe, in the kitchen or where it may be convenient, and gives a steady stream of clear and pure water ample in quantity for drinking and cooking purposes. This filter is equally well suited for family use, saloons, restaurants, offices and stores.

Prices.

Large size, single filter	$125 00
Large size, double filter	175 00
Cost of renewing filtering bed	2 00
Small size, "Clearfont"	12 00
Cost of renewing filtering bed	60

We put up our filters under a *positive guarantee* that they will give satisfaction in every particular and please the user.

We ask for a trial. Will furnish you sample, to make your own test, free of cost.

* * *

Miscellaneous Uses of Granite Rock Wool.

Granite Rock Wool Coverings

Are used on Marine, Stationary and Locomotive Boilers, Steam Pipes, Domes, Drums, Heaters, Cylinders, Vacuum Pans, Hot-blast Pipes, Super Heaters and all Heated Surfaces, Water Pipes, Brine Pipes Ammonia Pipes, Condensers, etc.

They are the most efficient preventatives of condensation of steam and radiation of heat.

Save Fuel; Get Dry Steam; Increase Power.

Granite Rock Wool in Bulk

Should be used in packing Incubators, Ice Water Coolers, Refrigerators, Ice Boxes, Ice Wagons, Refrigerator Cars, Cooling Chambers, Water Filters, Floors, Walls and Partitions of Flats, Apartment Houses, Stills, Tanks, Railroad Cars, Street Cars, Decks and Hulls of Vessels, around Powder Magazines, Water and Fire Plugs, Stoves, Ranges, Ovens, Drying Rooms, etc.

New uses for Granite Rock Wool are developing daily.

We would be pleased to furnish samples and information gratis.

* * *

If you are interested on the subject of filtration, do not fail to read

The Testimonials of

Wm. F. Nolker, Esq., Treasurer St. Louis Brewing Association.
Wm. A. Haren, Esq., Assistant Manager Wainwright Brewery.
John O'Brien, Esq., President John O'Brien Boiler Works Company.
Ward & Hopkins Catering Company, "The Meridian," 614 Locust Street.

Also the Certificates of

Geo. F. Hulbert, M. D., St. Louis.
Geo. W. Cale, M. D., F. R. M. S., London.
J. L. Ingram, M. D., Prof. Microscopy and Bacteriology, Am. Medical College, St. Louis.

25 to 30 per cent better results than any other coverings.

⁂

Sawyer's Granite Rock Wool (Non-Penetrable) Ammonia and Brine Pipe Covering.

Sectional Ready to Apply.

THE only insulation for this class of pipes that any one can apply under guarantee of satisfaction. Our covering has an inner and outer lining of special water, acid, alkali and temperature proof flexible material, and is put up complete ready to apply by anyone (no expert required as all other coverings must have to assure successful application). We furnish a liquid insulating cement for coating pipe, cementing joints and laps of covering, and coating the covering after it is placed on pipe. Is absolutely permanent, is not made of fluted papers or fake combinations of paper, tar, asphalt, rope, hair paper felts, and is indestructible and permanent.

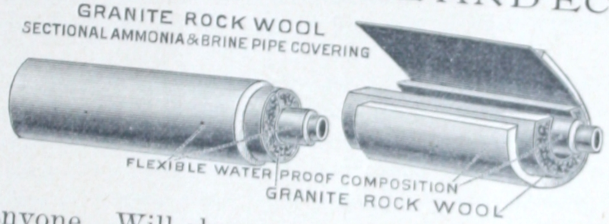
f insulating ammonia, brine and oxide pipes is the result of many

fect in insulating prop-

Once Used, Always Used.

MOST EFFICIENT, DURABLE AND ECONOMICAL

50 % BETTER THAN OTHER COVERINGS,


GRANITE ROCK WOOL
SECTIONAL AMMONIA & BRINE PIPE COVERING
FLEXIBLE WATER PROOF COMPOSITION
GRANITE ROCK WOOL

Permanent,

Can be applied by anyone. Will alway remain impervious. Will not rot or disintegrate. All other wet pipe sectional coverings require experience to apply.

AMERICAN INSULATING MATERIAL MFG. CO., 213 and 215 N. 3rd Street, St. Louis, U. S. A.

Inside diam. of Pipe.	Price per Lineal ft.	of Pipe.	
½ inch	$0 72	3½ inch	
¾ "	75	4 "	1 24
1 "	79	4½ "	1 33
1¼ "	82	5 "	1 45
1½ "	87	6 "	1 56
2 "	91	7 "	1 69
2½ "	97	8 "	1 75
3 "	1 02	9 "	1 88

Material for Fittings.

Double the price of one foot of same size pipe.

Figure Up.

If by the use of Sawyer's Granite Rock Wool Covering you can make 5 per cent more ice per day, or increase your refrigerating capacity to an equal extent, how much longer than 90 days would it take to save the cost of the covering and continue this saving regularly thereafter as that much of an annual increase of your net earnings.

REMEMBER, *Sawyer's Water-Proof Insulating Blocks*, for lining around ammonia, brine or tanks of every description, are the best, and most simple and easy to apply. See page 21.

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Address all communications to Home Office, St. Louis, U. S. A., F. K. Sawyer, Gen'l Manager.

. . THE . . .

American Insulating Material Mfg. Co.

All Products Protected under United States Patents.

SOLE PRODUCERS OF

Granite Rock Wool, (Patented) **Granite Rock Wool Filtering Fibre,**

G. R. W. Sectional Steam Pipe and Boiler Covering, (Patented)

G. R. W. Sectional Brine and Ammonia Pipe Covering, (Patented)

SAWYER'S PATENT FIRE AND WATER PROOF INSULATING BLOCKS, (Patented)

FILTERING BLOCKS AND DISCS. LOCOMOTIVE LAGGINGS.

SAWYER'S POLAR BRAND INSULATING PAPERS,
Odorless, Water-Proof and Permanent.

SAWYER'S POLAR BRAND INSULATING PAINTS,
Acid, Gas, Alkali, Water and Temperature Proof.

Granite Rock Asphalt Flexible Roofings and Roofing Cements and Coatings.

Temperature and Element Proof Sheathing and Building Papers.

Temperature and Element Proof Roofing and Paving Materials.

Granite Asphalt Coatings for Foundation Walls, Floors, Pipes, Conduits, Water Mains, etc.

Insulating and Fire-Proofing Materials of Every Description.

SAMPLES AND FULL INFORMATION FURNISHED FREE OF CHARGE.

BRANCH OFFICES in the principal cities of United States, Canada, Mexico, Great Britain, Europe, Australia and South Africa.

HOME OFFICE: 213 and 215 N. Third St.
HOME WAREHOUSES: 311 and 314 N. Main St.; 315 Commercial St.

St. Louis, U. S. A.

FACTORY AND WORKS: Carondelet, Mo. QUARRIES: Graniteville, Mo.

CAUTION. The only manufacturers of an absolutely pure Rock Wool. All others should be tested, as Granite Rock Wool is thoroughly protected by patents and the only Rock Wool made. Beware of imitations.